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Changes in Accounting Instruments within Growing and Ageing Organisations

Are Improvements always Likely, Feasible and Desirable?

Sandra Tillema

SOM-theme E Financial markets and institutions

Abstract:

In practice, we observe a desire to use ever more sophisticated, more developed accounting instruments. This paper tries to answer the question of whether it is likely, feasible and desirable that the accounting instruments of growing and ageing organisations (*i.e.* organisations that get larger and become older) get more sophisticated. In order to answer this question, it combines Van Loon's model of the dynamics of financial management with Mintzberg's model of organisational structure. The resulting theoretical analysis shows that, indeed, it is likely that the accounting instruments of growing and ageing organisations get more sophisticated. However, it also shows that in some circumstances the use of instruments that are very sophisticated may not be feasible or desirable. This occurs, for example, when managers do not have enough time available to use such instruments or when decision makers attach more importance to professional performance indicators than to financial performance indicators.

Changes in Accounting Instruments within Growing and Ageing Organisations^{1,2}

Are Improvements always Likely, Feasible and Desirable?

1. Introduction

It is very human to assume that everything always can and should be better. This also easily translates into the assumption that everything always becomes better. This myth of continuing improvements also applies to the accounting instruments that organisations use. In practice – especially among consultants – we observe the ambition to use ever more sophisticated, more developed accounting instruments. Examples of sophisticated instruments that have received much attention recently are Activity Based Costing (Kaplan and Cooper, 1998), the Balanced Scorecard (Kaplan and Norton, 1996), and Shareholder Value (Rappaport, 1998). The central question that this paper tries to answer is the question of whether, in general, for accounting instruments this continuous improvement is always likely, feasible and desirable³. In this respect, it concentrates on improvements that arise when organisations grow – *i.e.* get larger – or age – *i.e.* become older. The reason why it focuses on these improvements is that they result from developments that many organisations experience: successful organisations are likely to get larger, and continuing organisations – by definition – become older.

So far, the question of whether organisations will, can and should start using increasingly sophisticated accounting instruments when they get larger and grow older has not received much attention in the literature. More precisely, based on overviews of contingencies that did receive attention in the management accounting (see, for

example, Emmanuel *et al.*, 1990: 57-66; Drury, 2000: 648-54), we can conclude that the influence of the contingency of company age has not received substantial attention in the management accounting literature. This is rather surprising because the effects of company age have received attention in the organisation theory literature⁴, which was one of the driving factors behind the development of the contingency theory of management accounting (Otley, 1980: 416). Instead, company size is one of the major contingency factors in the management accounting (see, for instance, Bruns and Waterhouse, 1975; Merchant, 1981). What is more, also the relationship between company size and the level of sophistication of accounting instruments has been studied. For example, Innes and Mitchell (1995), Bjørnenak (1997), and Innes *et al.* (2000) found a significant positive relationship between company size and the adoption rate of Activity Based Costing (ABC). Similarly, Bright *et al.* (1992), Drury and Tayles (1994), and Adler *et al.* (2000) showed that larger manufacturers reported a wider use of, or planned introduction of, sophisticated costing techniques and practices – such as ABC, target cost planning and strategic management accounting – as compared to manufacturers in general⁵. Also, Pike (1988), and Klammer and Wilner (1991) found that larger organisations more often use sophisticated capital budgeting techniques and controls, such as longer-term capital budgets and investment risk analysis techniques.

Although each of the articles mentioned above studies the relationship between company size and level of sophistication of accounting instruments, none of them investigates this relationship longitudinally. Moreover, each article focuses on a single sophisticated accounting instrument – such as ABC – or small group of instruments – such as costing techniques – rather than on the broad set of accounting instruments of an organisation. Finally, the articles hardly provide explanations for the observed correlations. Only Bjørnenak (1997) offers a more elaborate explanation. More specifically, he presents test results that support his explanation that larger organisations have a larger network of communication channels and the necessary infrastructure for adopting sophisticated accounting instruments. Chenhall and Langfield-Smith (1998: 13-14) offer two alternative explanations for the positive relationship between company size and level of sophistication of accounting instruments.

First, they argue that increased organisational size leads to an increased complexity of tasks, which requires the division of labour. The accompanying differentiation between organisational units results in increased difficulties of integration. As a response, more sophisticated integrative mechanisms, including more sophisticated accounting instruments, are developed. Second, Chenhall and Langfield-Smith suggest that larger organisations more often use sophisticated accounting instruments because of their relatively greater access to resources to experiment with the introduction of recently-developed, sophisticated accounting instruments.

Recently, an interesting article of Moores and Yuen (2001) was published. Contrary to the articles mentioned above, this article considers management accounting systems in general rather than a single accounting instrument or a small group of accounting instruments. Also in contrast to the above-mentioned articles, the article adopts a life-cycle perspective to examine the level of sophistication longitudinally, rather than cross-sectionally. Moores and Yuen adopt a configurational approach. This approach captures four key organisational factors: strategy, structure, leadership and decision-making styles. The article argues that these factors differ across the five life-cycle stages that it distinguishes – namely, birth, growth, maturity, revival and decline⁶. Hence, implicitly Moores and Yuen consider both organisational age and size. Basically, Moores and Yuen address the relationships between the life-cycle stages and two aspects of management accounting systems: the range of accounting instruments selected, and the presentation of accounting information. The latter aspect concerns the sophistication of accounting instruments. It includes the levels of aggregation and integration, the scope, and the timeliness of accounting information (see also section 2). Moores and Yuen hypothesise that the levels of aggregation and integration will be higher, and the scope will be broader at the growth and revival stages than at other stages. In addition, they hypothesise that firms at the growth and revival stages will require more timely information than firms at other life-cycle stages. They find some empirical support for these hypotheses in a cross-sectional survey and a case study.

Hence, despite the contribution of Moores and Yuen, little is known about the longitudinal effects of company age and size on the level of sophistication of the

broad set of accounting instruments of organisations. This paper makes a start in filling this gap. In order to do so, it presents a theoretical analysis. This analysis focuses on a model that has been developed by Van Loon. Section 3 summarises this model. Subsequently, section 4 evaluates the possibilities and limitations of this specific model in answering our central question. It concludes that the model may be useful, but that it needs to be expanded first. For this purpose, the theoretical analysis relies on a model of organisational structure that has been developed by Mintzberg. This latter model is summarised in section 5. Section 6 expands Van Loon's model by linking it to Mintzberg's model. Next, section 7 uses the results of the link between the two models to formulate expectations for changes in the level of sophistication of accounting instruments in growing and ageing organisations. In addition to the theoretical analysis, the sections 6 and 7 present illustrations that are derived from empirical research that the author conducted recently in two power and gas companies. Finally, section 8 answers the central question of this paper and discusses the implications of the theoretical analysis. However, before we make a start at presenting the theoretical analysis, section 2 elaborates on the meaning of 'the level of sophistication of accounting instruments'.

2. Level of sophistication of accounting instruments

In this paper, the terms 'accounting instruments' and 'level of sophistication of accounting instruments' serve a central role. Therefore, we first need to establish what is meant by these terms. The term 'accounting instruments' refers to the elements of financial and non-financial information that are provided to organisational managers and employees⁷ for specific purposes – either operating decisions, or the planning and control of operating activities. Consequently, accounting instruments can be classified into decision-making instruments, and planning and control instruments. Examples of instruments in the first category are analyses used for decisions on selling prices and decisions on capital investments; examples of instruments in the second category are budgets, statements of actual outcomes, and performance targets.

As indicated above, accounting instruments can be classified according to their

level of sophistication. This classification might be based on various characteristics of accounting instruments. Chenhall and Morris (1986: 19-22) consider four categories: scope, timeliness, aggregation, and integration. Scope refers to the dimensions of focus (on events either within or outside the organisation), quantification (either in financial or in non-financial terms), and time horizon (related to either historical or future events). Timeliness pertains to both the question of whether information is provided on request, and the frequency of reporting systematically collected information. Aggregation has two dimensions: the form and the format of aggregation. The forms of aggregation range from the provision of raw, unprocessed data to a variety of aggregations around periods of time or areas of interest, such as responsibility centres or functional areas. The format of aggregation refers to the question of whether the aggregation is consistent with formal decision models, such as discounted cash flow analysis and linear programming. Integration, finally, pertains to the ability of accounting instruments to assist coordination of the various segments within an organisation, for example by providing information on the impact that decisions in one area have on operations throughout the organisation.

Each of these categories could be used to distinguish sophisticated instruments from unsophisticated ones. In defining ‘the level of sophistication of accounting instruments’, this paper uses only two categories: scope and aggregation. More precisely, it considers the three dimensions of scope – *i.e.* focus, quantification and time horizon – and the form dimension of aggregation. An extended discussion of the definition of the level of sophistication of accounting instruments will be provided in section 3. But roughly speaking, accounting instruments are more sophisticated when they combine information on events within and outside the organisation, when they combine information expressed in financial terms with information expressed in non-financial terms, when they refer to future events, and when they aggregate information around the activities under consideration.

3. Van Loon's model

Not every organisation performs all accounting tasks that can be distinguished. In addition, organisations can differ in the accounting instruments that they use to perform each of these tasks. Moreover, organisations may change the accounting tasks they perform and the accounting instruments they use. Hence, differences arise between organisations and within organisations at different points of time with respect to the accounting instruments used. These differences can also relate to the level of sophistication of the accounting instruments. In order to investigate these latter differences, this paper uses a model of the dynamics of financial management that has been developed by Van Loon (1993, 1994, 1995). An important advantage of this model is that it classifies accounting instruments into five clearly defined levels of sophistication, whereas the literature mentioned in section 1 only provides a more or less intuitive distinction between sophisticated and unsophisticated instruments.

Van Loon regards differences in the level of sophistication of accounting instruments between and within organisations as differences in developmental stage. He argues that the developmental stage of an organisation's accounting instruments should be in harmony with the developmental stages of two other organisational aspects: the planning attitude of the managers and the other decision makers, and the expertise of the employees who perform the accounting tasks. The first aspect – the planning attitude of managers and other decision makers – is concerned with the type of accounting information that managers and other decision makers would like to consider for decision-making, and planning and control purposes. Van Loon distinguishes five stages in the development of this aspect. In describing these stages, Van Loon focuses on planning and control instruments. However, it is also possible to carry Van Loon's reasoning further for decision-making instruments. Therefore, in the subsequent description of the planning-attitude stages, we will not only pay attention to planning and control instruments, but also briefly to decision-making instruments.

In the first of the five stages – the *unplanned stage*⁸ – managers and decision makers do not pay attention systematically to the financial consequences of the organisa-

tion's activities. The only accounting information that they use in this stage is information that is produced because the organisation is legally liable to disclose it to its external participants. This information is retrospective in nature. From the second stage onwards, managers and decision makers ask for information on the expected future financial situation. Typical of the second stage – which Van Loon names the *budgeting-system stage* – is that they ask for prospective accounting information that is based on trends in financial figures in the past. In the third stage – the *annual-planning stage* – managers and decision makers regard the financial situation explicitly as the result of the organisation's activities. Therefore, they demand that, instead of historical figures, short-run plans for the activities are the input for the accounting information. In the *long-range-planning stage*, which is the fourth stage in Van Loon's model, managers and decision makers request that, in addition to short-run plans, also long-run plans serve as an input for the accounting information. The final stage in the development of the planning attitude is the *strategic-planning stage*. Typically, in this stage managers and decision makers ask for accounting information that is based on a thorough analysis of the future market circumstances of the organisation, and that takes account of possible changes in these circumstances and of the position that the organisation wants to occupy in different circumstances⁹.

Thus, the developmental stage of the planning attitude of managers and decision makers determines the accounting instruments that these managers and decision makers desire. In turn, the accounting instruments that they desire have implications for the expertise that they require from the accounting employees. Table 1 shows the characteristics of the five planning attitude stages. In addition, it shows the demands that managers and decision makers in each of these stages put on the accounting instruments and the accounting expertise.

Table 1 **Characteristics of the planning attitude stages, and the demands in each of these stages on the accounting instruments and the accounting expertise.**

Stage:	Aspect:	Characteristics:
Unplanned stage	planning attitude	<ul style="list-style-type: none"> • primarily focus on activities • no planning of future financial situation • no explicit attention for financial consequences in decision-making process
	instruments expertise	<ul style="list-style-type: none"> • retrospective financial information • provide information on financial situation in the past
Budgeting-system stage	planning attitude	<ul style="list-style-type: none"> • meet external accounting requirements • planning of future financial situation based on financial situation in the past • budgets put restrictions on activities and decisions
	instruments	<ul style="list-style-type: none"> • budgets based on trends in financial figures in the past
	expertise ¹⁰	<ul style="list-style-type: none"> • planning and control instruments classified into cost and revenue categories • provide information on the financial situation in the future based on the financial situation in the past • aim at satisfying information needs of internal participants
Annual-planning stage	planning attitude	<ul style="list-style-type: none"> • planning of activities in the short-run
	instruments	<ul style="list-style-type: none"> • attention for short-term financial consequences of plans and decisions • budgets based on short-run plans • planning and control instruments classified according to groups of activities • analysis of short-term financial consequences of decisions
	expertise	<ul style="list-style-type: none"> • assist internal participants in planning and control, and decision-making processes • formulate expectations for short-term financial consequences of activities

Stage:	Aspect:	Characteristics:
Long-range-planning stage	planning attitude	<ul style="list-style-type: none"> • planning of activities in the short- and long-run • attention for short- and long-term financial consequences of plans and decisions
	instruments	<ul style="list-style-type: none"> • budgets based on short- and long-run plans • planning and control instruments classified according to groups of activities • analysis of short- and long-term financial consequences of decisions
	expertise	<ul style="list-style-type: none"> • formulate expectations for long-term financial consequences of activities
Strategic-planning stage	planning attitude	<ul style="list-style-type: none"> • planning of activities in the short- and long-run based on strategic planning of activities • attention for short- and long-term financial consequences of plans and decisions • attention for flexibility
	instruments	<ul style="list-style-type: none"> • flexible budgets based on short- and long-run plans that are based on the strategic plan • planning and control instruments classified according to groups of activities • analysis of short- and long-term financial consequences of decisions • analysis of financial consequences of alternative strategies • scenario analysis
	expertise	<ul style="list-style-type: none"> • valuation of flexibility into financial terms • acquire and use soft information on future market circumstances • value flexibility when evaluating activities • use flexible budgets

From table 1 it appears that the long-range-planning stage and the strategic-planning stage imply that the instruments from, respectively, the annual-planning stage and the long-range-planning stage are embedded in a broader framework. In other words, the strategic-planning stage builds on the long-range-planning stage, and the long-range-planning stage, in turn, builds on the annual-planning stage. However, these three developmental stages do not build on the unplanned and budgeting-system stages. Consequently, the instruments from the final three stages are similar in the sense that

they represent more or less elaborated variations on the same basic instruments, but these instruments are alternatives to the instruments from the first two stages.

This paper is not concerned with the developmental stage of the planning attitude of an organisation's managers and decision makers. Instead, it is concerned with the level of sophistication of an organisation's accounting instruments. Nevertheless, we can use Van Loon's model as a starting point for our analysis. That is, the developmental stages that Van Loon distinguishes for the planning attitude of managers and decision makers, also imply developmental stages for accounting instruments. We can regard these latter developmental stages as different levels of sophistication of accounting instruments. Moreover, Van Loon argues that the developmental stage of the accounting instruments should be in harmony with the developmental stage of the planning attitude and the developmental stage of the accounting expertise. As such, he identifies two factors that are related to the developmental stage of an organisation's accounting instruments, and thus to their level of sophistication. We regard planning attitude and accounting expertise as, respectively, a demand-side factor and a supply-side factor that may explain the level of sophistication of accounting instruments¹¹.

In each of the planning-attitude stages, managers and decision makers make different demands on the accounting instruments. However, the instruments that an organisation actually has available can deviate from the instruments that its managers and decision makers want it to have available. Van Loon's model contains a factor that may cause such deviations: the expertise of the organisation's accounting employees. That is, the developmental stage of the accounting expertise may differ from the developmental stage of the planning attitude. More particularly, accounting employees may not be able or may not want to supply the instruments that the managers and decision makers require, or they may supply accounting instruments that the managers and decision makers do not need. Such situations rise, for example, when decision makers want insight into the long-term financial consequences of capital investments, whereas accounting employees are not able to determine these consequences. The opposite situation may also exist, for example, when accounting em-

ployees produce budgets, whereas managers refuse to take budgetary information into account when managing the organisation's activities.

Hence, Van Loon's model suggests two factors that can influence the level of sophistication of an organisation's accounting instruments: the planning attitude of its managers and decision makers, and the expertise of its accounting employees. This gives rise to the simple model that is shown in figure 1.

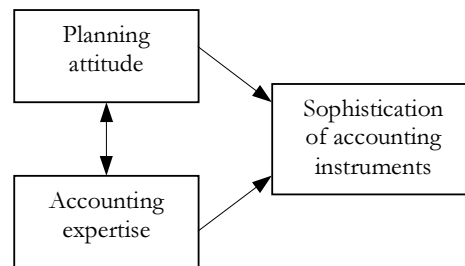


Figure 1 Simple model for explaining the level of sophistication of accounting instruments.

4. Possibilities and limitations of Van Loon's model

Our central question was the question of whether continuous improvement of accounting instruments is likely, feasible and desirable in growing and ageing organisation. In order to answer this central question, we divide it into two sub-questions. The first sub-question is whether it is *likely* that the accounting instruments of growing and ageing organisations go through lower and then higher stages of development. Van Loon answers this question as follows:

The [accounting] function develops autonomously: people who work in that sector constantly learn, become more professional and enable ever better control over the organisation, on the basis of financial and economic aspects. What I wish to describe [in the model] is this sort of autonomous development [...] (Van Loon, 1994: 21; translation).

The [accounting] tasks do not exist or are not performed in an equally professional manner in all organisations. This is due to the fact that the [accounting] function develops, or should develop, in parallel with the organisation itself (Van Loon, 1993: 15; translation).

These remarks show that Van Loon claims that the accounting instruments within an organisation go or should go through lower and then higher stages of development. He also claims that their development runs or should run parallel with the development – *i.e.* growing and ageing – of the rest of the organisation. However, he does not provide a solid foundation for these statements. In this paper the validity of the statements will be judged on the basis of a theoretical analysis.

The second sub-question is whether ever higher stages of development are *feasible* and *desirable* for all growing and ageing organisations. Van Loon attempts to answer this question too. He argues that a transition to a higher stage of development is accompanied by an increase in the costs involved in accounting activities (Van Loon, 1994: 42). This cost increase should be balanced against the benefits of a higher stage of development. Van Loon's argument indicates that a higher stage of development is not always preferable. However, he does not elaborate on the circumstances under which higher stages of development should not be reached. This paper examines reasons for the infeasibility and undesirability of further development.

To answer both sub-questions, Van Loon's model will be expanded to include Mintzberg's model of organisational structure. This latter model is included for two reasons. First, it distinguishes different types of organisations, and the characteristics of these types can be expected to affect the developmental stages of the accounting instruments. Second, according to Mintzberg organisations can undergo a transition from one organisational type to another when they grow or age. Hence, when combining Van Loon's model and Mintzberg's model, we can examine what happens to the developmental stages of the accounting instruments in growing and ageing organisations. Alternatively, we could have expanded Van Loon's model with a life-cycle model, such as the models described in Quinn and Cameron (1983), and Miller

and Friesen (1980, 1983, 1984). This would be similar to the approach followed by Moores and Yuen (2001), which was described in section 1. Merchant (1981: 814), however, stresses the importance of having a fit between the characteristics of an organisation and its environment, and the design of its accounting system. To some extent, Moores and Yuen capture this fit by adopting a configurational approach. As such, they consider differences in organisational and environmental characteristics between organisations of a different age. However, their approach ignores the differences in organisational and environmental characteristics that exist between different types of organisations. Organisations with professional activities, for example, may use other accounting instruments than organisations of the same age but with non-professional activities. We must not ignore this effect when investigating changes in the level of sophistication of accounting instruments. In other words, the advantage of Mintzberg's model compared to life-cycle models is that it allows us to investigate the influence of age and size on the level of sophistication of accounting instruments, while acknowledging that different types of organisations may use different types of accounting instruments. Section 5 briefly describes Mintzberg's model.

5. Mintzberg's model

Mintzberg (1993: 2) defines the structure of an organisation as 'the sum total of the ways in which its labor is divided into distinct tasks and then its coordination is achieved among these tasks'. In his model, he distinguishes a number of parameters with which managers can influence the structure of their organisation – the so-called design parameters – and a number of characteristics of the environment of the organisation – the so-called situational or contingency factors. Mintzberg (1993: 121-3) claims that, in order to be effective, organisations should select design parameters and contingency factors in such a way that there is a consistency both among design parameters, and between design parameters and contingency factors. Mintzberg (1993: 151-5) argues that only five combinations of design parameters and contingency factors are consistent¹². These are the so-called configurations: the simple structure, the machine bureaucracy, the divisionalised form, the professional bu-

reaucracy, and the adhocracy¹³. In each of these configurations another mechanism to coordinate the organisational tasks is dominant.

It is beyond the scope of this paper to elaborate further on Mintzberg's model. However, in order to make the reader more familiar with this model, table 2 summarises the main characteristics of the five configurations (*cf.* Mintzberg, 1993: 280-1).

Table 2 Main characteristics of the five configurations.

	Simple structure	Machine bureaucracy	Divisionalised form	Professional bureaucracy	Adhocracy
Coordinating mechanism:	direct supervision	standardising processes	standardising output	standardising skills	mutual adjustment
Design parameters:	decision-making power especially for top management	decision-making power especially for top management and staff specialists that develop rules and procedures	considerable decision-making power for middle-line management	considerable decision-making power for operators	considerable decision-making power for project teams
	clear distinction between operators and decision makers	clear distinction between operators and decision makers	clearness of distinction between operators and decision makers varies	no clear distinction between operators and decision makers	no clear distinction between operators and decision makers
	no strict division of labour between operators	strict division of labour between operators	at least some division of labour between operators	strict division of labour between operators	strict division of labour between operators
	operators with little education	operators with little education	level of education of operators varies	operators with high education	operators with high education
	if present: unit grouping on a functional basis	unit grouping on a functional basis	unit grouping on a market and a functional basis	unit grouping on a market basis is equal to unit grouping on a functional basis	unit grouping on both a market and a functional basis
	no specific other design parameters	use of rules and procedures	use of planning and control system	no specific other design parameters	use of lateral link-ages

	Simple structure	Machine bureaucracy	Divisionalised form	Professional bureaucracy	Adhocracy
Contingency factors:	dynamic environment	stable environment	preferably stable environment	stable environment	dynamic environment
	easy to comprehend necessary knowledge	easy to comprehend necessary knowledge	necessary knowledge preferably easy to comprehend	not easy to comprehend necessary knowledge	not easy to comprehend necessary knowledge
	young	old	old	age varies	in general not old
	small	large	large	size varies	size varies
	small number of product-market combinations	small number of product-market combinations	several product-market combinations	often several product-market combinations	number of product-market combinations varies

Mintzberg argues that only the five combinations of design parameters, contingency factors and coordinating mechanisms that have been presented in this section are consistent. However, Mintzberg (1993: 156) does not claim that there are organisations which exactly fit a single configuration. In his opinion, the configurations are stereotypes that can be used to understand differences in organisational structure. This implies that we must realise that this paper's theoretical analysis, which uses Mintzberg's model as an important input, also only deals with stereotypes.

Mintzberg (1993: 230, 286-7, 291-3) makes clear that organisations can undergo transitions from one configuration to another. In his view, these transitions can result from changes in the contingency factors. Among the contingency factors that can cause changes in configuration are company size and age. Hence, the growth and ageing of organisations may give rise to changes in configuration. According to Mintzberg, two configurations are likely to change into other configurations from the mere fact that they become older. The first is the simple structure, which is *likely* to change into the machine bureaucracy; the second is the adhocracy, which is *likely* to change into either the machine bureaucracy or the professional bureaucracy. The remaining configurations may change as a result of getting larger. In this case, these configurations may undergo a transition to a divisionalised form. That is, a growing machine bureaucracy or professional bureaucracy *possibly* changes into a divisionalised form.

6. Expansion of Van Loon's model

Since we have been able to distinguish likely and possible transitions in configuration for growing and ageing organisations, we only need to link Van Loon's model and Mintzberg's model to be able to answer our central question, which concerns changes in the level of sophistication of accounting instruments in growing and ageing organisations. That is, we need to formulate expectations with respect to the developmental stage of the accounting instruments in each of the configurations.

In order to link the developmental stages to the configurations, we argue below that an organisation's configuration may influence both the planning attitude of its

managers and decision makers and the expertise of its accounting employees. In addition, we argue that this configuration may also influence the organisation's accounting instruments directly. These relationships give rise to an adjustment of the simple model presented in figure 1. Figure 2 shows the expanded model that results from this adjustment.

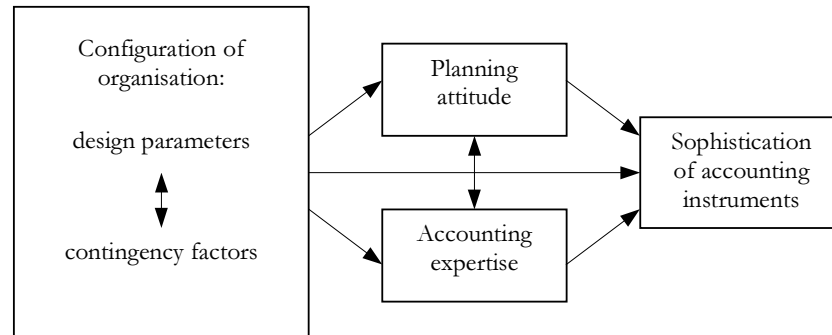


Figure 2 **Expanded model for explaining the level of sophistication of accounting instruments.**

This section presents the arguments behind the relationships presented in figure 2. In addition, it links the specific configurations with the specific developmental stages of accounting instruments. That is, it argues which developmental stages for the accounting instruments are consistent with each of the configurations.

The first configuration is the simple structure. This configuration influences the level of sophistication of accounting instruments in each of the three ways mentioned above. First, the simple structure uses direct supervision as the dominant coordinating mechanism. That is, some persons – the managers – take responsibility for the work of the people who produce the products and the services – the operators; they issue instructions to them and monitor their actions. As a result, the simple structure's management needs to spend most of its time solving the problems that arise with respect to the organisation's activities; the time left to think about the future financial situation is very limited. Consequently, the planning attitude of the simple

structure's management is in the unplanned stage. Second, the simple structure only has a loose division of labour between operators. Hence, it does not have a department that is specialised in performing accounting tasks. Most likely, the only persons who perform accounting tasks are the managers, who, in many cases, are not trained to do so. Therefore, the accounting expertise in the simple structure is consistent with the unplanned stage. Finally, the simple structure influences the accounting instruments directly. To be precise, the simple structure's environment is dynamic, meaning that its environment is difficult to predict¹⁴. As a result, the simple structure usually has difficulty with predicting its future financial situation. This limits the accounting instruments available to the simple structure to the instruments that are consistent with the unplanned stage. Consequently, in the simple structure, the accounting instruments are only consistent with the unplanned stage.

The research on power and gas companies referred to in section 1 includes research on a cable and telecommunication operating company that developed from a relatively small into a relatively large operating company in a few years and that introduced several new products during this period. It quite regularly faced changes in market conditions and technical possibilities. Because the operating company was still being set up and its activities regularly changed, direct supervision was one of the important mechanisms for controlling its activities. Hence, the operating company had characteristics of the simple structure^{15,16}.

Basically, the cable and telecommunication operating company offers only standard products. And yet commercial staff regularly deal with customers who ask them if the operating company can also supply custom-made products. This means that they have to decide whether or not to execute one-off special orders. Until recently, it was often not clear that an order was a one-off until a decision was taken by commercial staff. No financial analyses were made to facilitate this type of decision. This is an aspect of the unplanned stage. This stage is, according to the theoretical analysis, also the developmental stage for the decision-making instruments expected in an operating company with characteristics of the simple structure. In addition, the reason given for the lack of sophisticated instruments resembles the line of reasoning in the theoretical analysis. It was argued that, when a decision was taken, the operating company's attention was focused on increasing sales; the financial consequences of a sales increase were of secondary importance.

The machine bureaucracy uses the standardisation of work processes as the dominant coordinating mechanism. More particularly, its tasks are divided into simple elements, which require only simple knowledge, and its managers ask technical analysts to formulate standards that the people performing these tasks should meet. Some of these standards – for example, efficiency standards – can be used to forecast the financial consequences of activities. If managers demand the use of such standards for this purpose, their planning attitude is at least in the annual-planning stage. Yet, the attention of the machine bureaucracy's management does not need to be restricted to the time horizon that is consistent with the annual-planning stage; it is possible that its management formulates plans for a longer period of time. However, because of the stability of the machine bureaucracy's environment, it is not very likely that its management develops a strategic orientation. Consequently, in the machine bureaucracy the managers' planning attitude is either in the annual-planning stage, or in the long-range-planning stage. In addition, because the machine bureaucracy has highly specialised tasks, it has specialists available to perform the accounting tasks. This enables the machine bureaucracy to produce accounting instruments that are at least consistent with the annual-planning stage. Finally, because its environment is stable – *i.e.* predictable – the machine bureaucracy can predict its future financial situation, and, hence, use instruments that are consistent with the annual-planning or long-range-planning stage. For these reasons, the accounting instruments in the machine bureaucracy are consistent with the annual-planning stage and the long-range-planning stages.

The divisionalised form is divided into several divisions. The managers of these divisions have decision-making authority over a large number of decisions. The top managers of the organisation – *i.e.* the managers at the corporate level – evaluate the results of these decisions by comparing these with predetermined standards. In practice, this type of coordination implies that the divisional managers have to submit periodically documents that contain their forecast of the future financial situation to the top managers. With the help of planning and control analysts, the top managers evaluate these documents. If the top managers approve the documents, they decen-

tralise decision-making power to the divisional managers. The approved documents also contain the standards that the top managers use to evaluate the divisional performance. Because the top managers require forecasts of the future financial situation to coordinate the divisional activities, their planning attitude – as far as it is related to planning and control – is at least in the budgeting-system stage. Dependent on the characteristics of the documents that the top managers require from the divisional managers, the planning attitude of the top managers in the divisionalised form can range from the budgeting-system stage to the strategic-planning stage.

The planning attitude of the top managers of the divisionalised form is not the only factor at the corporate level that influences the accounting instruments available for planning and control purposes. First, the accounting instruments that the corporate level possesses are also influenced by the accounting expertise at the top. Due to the presence of planning and control analysts, this expertise is at least consistent with the budgeting-system stage. Second, the divisionalised form influences the accounting instruments at the corporate level directly. More precisely, if these instruments were only consistent with the unplanned stage, the divisionalised form could not delegate decision-making power to its divisions without, from a financial point of view, becoming a loose collection of individual organisations. For these reasons, we assume that at the corporate level the accounting instruments used for planning and control purposes are at least consistent with the budgeting-system stage.

Up to this point, we focused on the influence of the planning attitude, accounting expertise and other explanatory factors at the corporate level. However, it should be noted that the divisionalised form does not constitute a complete structure: the organisation can structure each division as one of the other configurations, or even as a divisionalised form itself. As a result, the corporate planning and control instruments are also influenced by the configuration of the divisions. More particularly, for the use of some planning and control instruments – for example, budgets based on annual plans – the corporate level needs to rely on instruments produced at the divisional level. These instruments are influenced by the divisional configuration – both directly, and via the planning attitude and the accounting expertise at the divisional level. Consequently, the divisional configuration influences the instruments that the

organisational top has at its disposal. For example, top managers should not expect a division that has primarily characteristics of the simple structure to draw-up budgets on the basis of long-range plans: its managers have too little time to make up these plans; its organisational participants lack accounting knowledge; and its environment is too dynamic¹⁷. Conversely, the top managers can influence the accounting instruments used for planning and control purposes at the divisional level, because they can prescribe the performance and the way of performing certain accounting tasks.

So far, we only paid attention to the accounting instruments that are related to the planning and control of activities. Apart from these instruments, the divisionalised form also uses accounting instruments for decision-making purposes. However, the divisional form does not have any particular characteristic that influences these instruments. It seems more appropriate to relate these instruments to the configuration of the organisational part – either the divisions or the corporate level – that produces them. The only addition that can be made for the divisionalised form is that the top management can influence the decision-making instruments that the divisions use by prescribing the fulfilment and the way of fulfilling accounting tasks.

The professional bureaucracy relies, in order to coordinate its activities, on the standardisation of skills. That is, it employs as ‘operators’ well-trained and indoctrinated professionals. During their training, these professionals have learnt how to apply standard sets of skills to standard situations. The professionals work relatively independently from each other and from their managers. Moreover, they have decision-making authority over a large number of decisions. However, when making decisions their background causes them to focus on professional performance indicators, rather than on financial performance indicators. This effect is reinforced because of the fact that the professionals, in general, lack accounting expertise. The professionals’ emphasis on professional performance indicators and their lack of accounting expertise result in a situation in which an analysis of the financial consequences is not very important when making decisions. Therefore, the planning attitude of the decision makers in the professional bureaucracy is basically in the unplanned stage.

The managers in the professional bureaucracy are responsible for the planning and

control process. Their planning attitude may be more developed than the planning attitude of the professionals, because they may be more concerned with the financial performance. Due to the stability of the professional bureaucracy's environment, the managers – possibly with the help of planning and control analysts – can base planning instruments on either trends in financial figures, or relationships observed in the past between the activities and the financial figures in combination with annual or long-range plans. Hence, the accounting instruments that are available for the planning of the activities may range from the unplanned to the long-range-planning stage. As with the machine bureaucracy, the strategic-planning stage is less likely, because of the stability of the environment.

The level of sophistication of the control instruments in the professional bureaucracy is likely to be relatively low. This results from the fact that the professional bureaucracy's tasks are complex, meaning that the knowledge necessary to perform the operating activities is not easy to comprehend. Because of this, managers have difficulty with assessing non-financial performance figures. Consequently, the only way in which they can control the professionals is to compare budgeted with actual financial figures, which is consistent with the budgeting-system stage. When managers try to control the behaviour of the professionals in this way – *i.e.* by restricting costs to the amounts specified in the budget – they confront professionals who make decisions with financial restrictions. As a result, the planning attitude of these professionals is also in the budgeting-system stage. In summary, in the professional bureaucracy the planning attitude of an important group of decision makers – namely, the professionals – and the complexity of the operating tasks, restricts the level of sophistication of the accounting instruments. Although for some accounting tasks more sophisticated instruments may be used, for many tasks the professional bureaucracy can only be linked with the unplanned and budgeting-system stages.

The research on power and gas companies includes research on an operating company that has to decide when certain parts of the electricity or gas grid have to be replaced. Specific technical knowledge is required for this type of decision. Engineers – i.e. professionals – therefore decide which parts of the grid will be replaced in a particular year. Accounting staff cannot be sure that these engineers will pay enough attention to the financial consequences of their decisions. To make the engineers more aware of these consequences, the operating company prepares budgets for replacement investments, mostly based on previous replacement investments. This sort of planning instrument is consistent with the budgeting-system stage. Moreover, the engineers are not allowed to exceed the budgets. This control instrument is also consistent with the budgeting-system stage. As such, the way of planning and controlling described above is in accordance with the theoretical analysis.

The adhocracy aims at sophisticated innovations. These innovations require that the adhocracy decentralises decision-making power for many types of decisions to multi-disciplinary project teams. These teams have to solve very complicated problems, in which they use mutual adjustment as the dominant coordinating mechanism. The complex problems have to be solved in an environment that is dynamic. This means that it is difficult to forecast the future. For the accounting instruments, this implies that it is difficult to determine the financial consequences of particular future activities. As a result, when taking decisions, it is not possible to see what the financial consequences of these decisions will be. Furthermore, it is hardly possible to base budgets on plans for activities. Therefore, the only way in which managers can try to control the adhocracy is to formulate budgets for the different projects that are consistent with the budgeting-system stage. Moreover, because of the complexity of the adhocracy's tasks, its managers have difficulty with assessing non-financial performance figures. This implies that these managers are also likely to use control instruments that fit into the budgeting-system stage. Of course, it is also possible that the adhocracy does not possess a budgeting system, which leaves its accounting instruments in the unplanned stage.

So far, we only paid attention to the direct relationship between the configuration of the adhocracy and the accounting instruments. When we look at the other two relationships, we see that the direct relationship is the only relevant relationship for

the adhocracy. Both the planning attitude of the managers and the accounting expertise may be in a higher developmental stage. However, the dynamism of its environment and the complexity of its tasks limit the adhocracy's accounting instruments to the instruments that are consistent with the unplanned and budgeting-system stages.

This section has linked Van Loon's model of the dynamics of financial management with Mintzberg's model of organisational structure. This approach has resulted in an expansion of our model of the level of sophistication of the accounting instruments, which was shown in figure 2. Table 3 summarises the implications of the expanded model by indicating which developmental stages of accounting instruments are (+) and which stages are not (-) consistent with each of the configurations.

Table 3 The developmental stages of accounting instruments that are consistent with the five configurations.

	Simple structure	Machine bureauc- racy	Division- alised form¹⁸	Profes- sional bureauc- racy¹⁹	Ad- hocracy
(1) Unplanned stage	+	-	-	+	+
(2) Budgeting-system stage	-	-	+	+	+
(3) Annual-planning stage	-	+	+	-	-
(4) Long-range-planning stage	-	+	+	-	-
(5) Strategic-planning stage	-	-	+	-	-

7. Implications of the expanded model for changes in accounting instruments

The expanded model can be used to examine changes in the level of sophistication of the accounting instruments in growing and ageing organisations. To this end it is necessary to consider which configurations will probably or possibly change into

which other configurations when organisations grow and age. Probable changes result from the fact that continuing organisations become older, and some configurations generally do not occur in older organisations. Possible changes result from the fact that configurations that can occur in older organisations may be less suitable when organisations become larger. The consequences of both types of changes for the level of sophistication of accounting instruments can be determined by using the expanded model.

The following two configurations generally occur only in younger organisations: the simple structure and the adhocracy (Mintzberg, 1993: 292). Hence, when organisations become older, these configurations are likely to change into other configurations. When a simple structure is getting older, situations will be similar to situations that have occurred in the past, so the operators will learn how to act in certain situations. Moreover, rules and procedures for an increasing number of situations will set out who have to perform which acts. This will result in more and more standardisation of work processes and more and more specialised operators. The outcome will be a transition to a machine bureaucracy. According to the expanded model, accounting instruments will develop and go from the unplanned stage to the annual-planning or long-range-planning stage during this transition. In other words, the change of configuration will result in more sophisticated accounting instruments.

The cable and telecommunication operating company described in section 5 has become a relatively large operating company that is changing at a slower rate. As a result, activities in important segments of the operating company are increasingly turning into routines. These activities will be more and more controlled by means of standardising work processes. This has resulted in a transition from a simple structure to a machine bureaucracy.

The theoretical analysis suggests that, during this transition, the operating company will replace certain unsophisticated accounting instruments with instruments consistent with the annual-planning or long-range-planning stage. This has indeed happened to the accounting instrument for taking decisions on one-off special orders. In the past no financial analyses were made before these decisions were taken. Nowadays teams of commercial and technical staff assess whether, in view of the extra effort required, a particular one-off special order is an attractive proposition from a financial point of view. The reason given for the use of the more sophisticated accounting instrument is the operating company's greater focus on the financial aspects of activities, now that sales have risen to a reasonable level. In other words, the change in accounting instrument results from the transition from a simple structure to another configuration.

An adhocracy is likely to repeat successful projects of the past. The organisation will then be faced with situations that are similar to situations of the past. It is likely that this results in standardisation, which will mean a transition to another configuration. In other words, an adhocracy usually does not exist for long. If it starts repeating successful projects, it is likely to change into a professional bureaucracy or a machine bureaucracy. An adhocracy will change into a professional bureaucracy if the organisation's tasks remain so complex that 'operators' need to be highly educated. In case of a transition to a professional bureaucracy, the expanded model shows that the transition does not have any consequences for the level of sophistication of the accounting instruments. When successful projects are repeated, tasks can also be divided into simple elements that can be performed by less skilled operators in accordance with certain rules and procedures. This will mean a transition to a machine bureaucracy. The expanded model shows that in this case accounting instruments will develop and go from the unplanned or budgeting-system stage to the annual-planning or long-range-planning stage. In other words, the accounting instruments will become more sophisticated.

Figure 3, with the complexity of the operating tasks on the horizontal and the

stability of the environment on the vertical axis, presents the five configurations. The numbers within brackets indicate the developmental stages that are consistent with a particular configuration (*cf.* table 3). The arrows in this figure represent the likely transitions, and +, = and – signs show whether these transitions result in more, equally or less sophisticated accounting instruments, respectively.

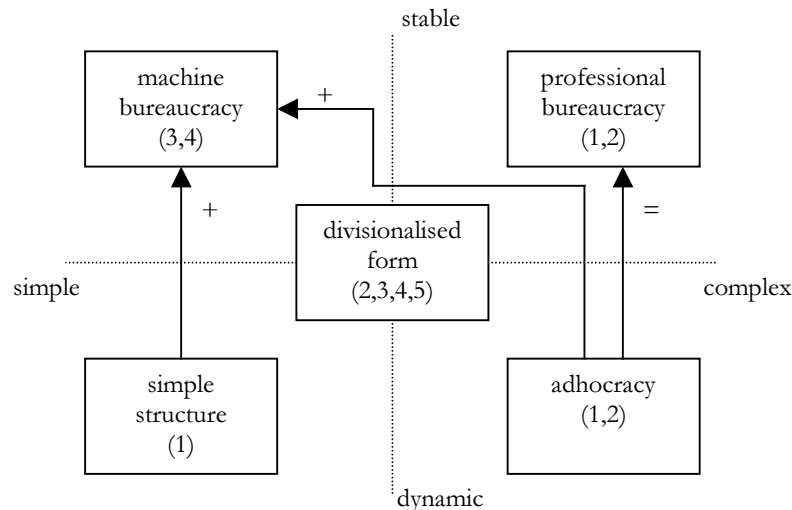


Figure 3 Likely transitions in configuration.

The remaining three configurations can occur in older organisations. However, this does not mean that these configurations cannot possibly change into other configurations when they become larger. More particularly, as an organisation grows large, it tends to introduce new product-market combinations (Mintzberg, 1993: 230). As a result, the organisation can become so complex that senior management can no longer control every organisational unit in detail. This problem can be solved by dividing the organisation into divisions, which are run by divisional managers. Senior management can then focus their attention on the main objectives. Hence, a machine bureaucracy and a professional bureaucracy may grow into a divisionalised form.

The expanded model shows that the transition from a machine bureaucracy to a

divisionalised form can mean that the level of sophistication of the accounting instruments does not change. However, it can also mean that planning and control instruments will develop and go from the annual-planning or long-range-planning stage to the strategic-planning stage. This will be the case if the corporate management of the divisionalised form attaches great importance to the task of judging which product-market combinations should be offered in future market conditions. Finally, the transition can mean that planning and control instruments return to an earlier developmental stage, namely the budgeting-system stage. This will be the case if the corporate management prefers focussing on financial figures, rather than focusing on the activities that underlie these figures. It may regard focusing on the activities itself as a task of the divisional managers. The transition from a machine bureaucracy to a divisionalised form can therefore result in planning and control instruments at a higher, an equal or a lower stage of development.

The transition from a professional bureaucracy to a divisionalised form will have consequences for the type of professional bureaucracy whose planning and control instruments are at the unplanned stage. According to the expanded model, the planning and control instruments of this type of organisation will develop and go from the unplanned stage to at least the budgeting-system stage. Hence, the change of configuration may imply that accounting instruments reach a higher stage of development.

For the transitions from both the machine bureaucracy and the professional bureaucracy to the divisionalised form, the expanded model shows that the level of development does not change for the decision-making instruments. The only exception is when the corporate managers prescribe decision-making instruments in a developmental stage that differs from the developmental stage of the past instruments. However, the expanded model does not include any clues with respect to the direction of such prescriptions.

It has been argued above that an adhocracy usually does not exist for long. However, this does not rule out the existence of older adhocracies. When this type of adhocracy grows, it can also change into a divisionalised form. This transition, like the transition from a professional bureaucracy to a divisionalised form, can mean that planning and control instruments will develop and go from the unplanned stage to a

higher stage of development. Again, according to the expanded model there will not be any changes in the developmental stage of the decision-making instruments.

Figure 4, which is comparable to figure 3, presents the possible transitions and shows whether these transitions result in more (+), equally (=), or less (-) sophisticated accounting instruments.

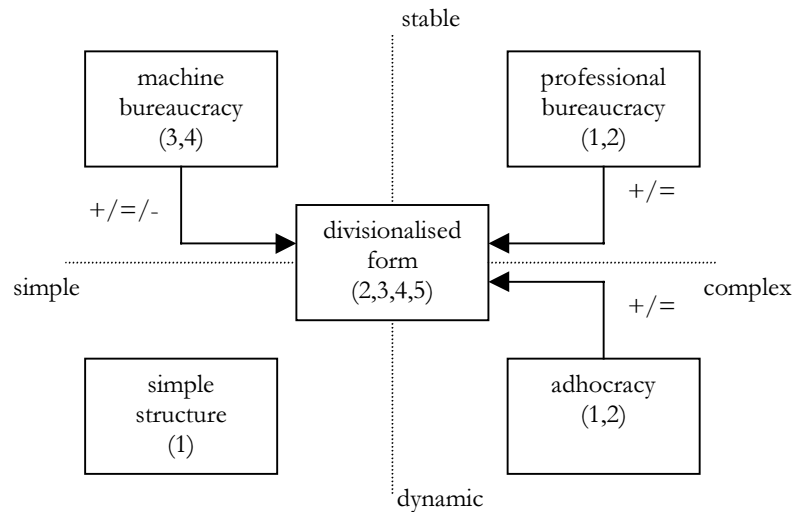


Figure 4 Possible transitions in configuration.

8. Conclusions and discussion

This paper investigated whether, in general, it is likely, feasible and desirable that the accounting instruments of growing and ageing organisations become ever more sophisticated. In order to do so it concentrated on Van Loon's model of the dynamics of financial management, which distinguishes five developmental stages for accounting instruments. Van Loon claims that if the accounting instruments of growing and ageing organisations change, they go through or should go through lower and then higher stages of development. Hence, Van Loon states that, indeed, it is likely that the accounting instruments of growing and ageing organisations become more sophisticated. This paper expanded Van Loon's model with Mintzberg's model

to judge the theoretical validity of this statement. Several elements of this expanded model support Loon's statement that accounting instruments become ever more sophisticated in a growing and ageing organisation. First, the model suggested that under some circumstances growing and ageing organisations start using more sophisticated accounting instruments. Second, it indicated that a further growth and ageing of organisations is unlikely to result in a return to an earlier developmental stage of accounting instruments. Only in case of a transition from the machine bureaucracy to a divisionalised form, some accounting instruments might become less sophisticated.

The expanded model also suggested that for growing and ageing organisations a further development of accounting instruments is not always feasible and desirable. This supports Van Loon's statement that accounting instruments may not develop further in growing and ageing organisations. According to Van Loon, the development of accounting instruments may be halted because the costs exceed the benefits of further development. However, the expanded model contains an alternative explanation that identifies the organisational characteristics which shape the development of accounting instruments. The expanded model argued that, as far as accounting instruments are concerned, ever higher stages of development are not feasible for every type of organisation. First, the management of certain types of organisations does not have enough time to think about future financial situations, so that their accounting instruments remain at a relatively low stage of development. Second, because of a lack of specialised staff, organisations may not have sufficient accounting expertise to develop sophisticated accounting instruments. Finally, the dynamics of an organisation's environment can make it difficult for the organisation to formulate expectations concerning future financial situations, which implies the lack of sophisticated accounting instruments. Also, in certain types of organisations it may not be desirable to reach higher stages of development. More precisely, in a stable environment developing a strategically financial orientation – and using the accompanying sophisticated instruments – may not add anything. Further, more sophisticated accounting instruments may not be needed if professional performance indicators are regarded as more important than financial performance indicators in

the decision-making process. Only in the case of a divisionalised form does it seem to be feasible and, under certain circumstances, desirable to develop accounting instruments until they reach the highest stage of development.

To sum up, the theoretical analysis in this paper complements empirical evidence on the positive relationship between company size and the level of sophistication of accounting instruments. What is more, it offers an explanation for this relationship that is, on the whole, more elaborate than the explanations suggested in the literature. Furthermore, the analysis explains that not only company size, but also company age positively influences the level of sophistication of accounting instruments. Moreover, it makes clear that the level of sophistication of accounting instruments as a result of the growing and ageing of organisations may be halted under certain circumstances. The cost-benefit explanation for this phenomenon has been replaced with a more satisfactory explanation, which focuses on specific characteristics of organisations. In this way, the paper argues that a lack of sophisticated accounting instruments need not be regretted: under certain circumstances it is not feasible or desirable to use very sophisticated accounting instruments.

This paper is a first attempt to study the factors that explain the level of sophistication of accounting instruments. An important future research direction would be to confront the expanded model with empirical data. The appropriate approach would be to use the case study method. This method allows us to study the effects of company age and size longitudinally, which is a line of research that does not seem to have received much attention in the literature until now. A second research direction would be to further extend the model developed in this paper. More precisely, this model focuses on the relationship between the level of sophistication of accounting instruments and two contingency factors, namely company age and size. It would be interesting to investigate the effects of other contingency factors, such as the stability and complexity of the environment. In other words, positive benefits can be reaped if empirical data is included and more elaborate models are adopted in the investigation of the level of sophistication of accounting instruments.

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³ Recently, in the literature we see articles that pay attention to the questions of why more sophisticated instruments are not always used, and why – if they are used – success is not guaranteed (see for example Shields, 1995; Player and Keys, 1995a, 1995b and 1995c; Ter Bogt and Van Helden, 2000). These articles primarily pay attention to implementation-related factors that influence the successful use of a specific sophisticated instrument, such as the influence of top management support on the successful use of Activity Based Costing. In contrast, this paper focuses on the influence of more general organisational and environmental factors – as distinguished in the contingency theory of management accounting – on the level of sophistication of an organisation's broad set of accounting instruments.

⁴ Mintzberg (1979: 227-8) refers to a few studies in this area.

⁵ Brierley *et al.* (2001) summarise and review research of product costing practice in Europe. Several of the articles they discuss also consider the relationship between – on the one hand – company size, and – on the other hand – using sophisticated costing techniques and practices.

⁶ This distinction is based on Miller and Friesen (1983, 1984).

⁷ Although the term 'accounting instruments' might suggest that the provision of information to external parties is also considered, this paper does not pay attention to this topic. It concentrates on the provision of information to people within the organisation. That is, it is concerned only with management accounting, rather than with both financial and management accounting.

⁸ The unplanned stage does not exclude any form of planning. Instead, it implies that there is no planning in a financial sense. Hence, if an organisation's accounting instruments are consistent with the unplanned stage, this organisation may, for example, have a production plan, but this plan has not been translated into financial terms.

⁹ The strategic-planning stage does not arise from the mere introduction of a strategic plan. Instead, it requires an explicit link between the strategic position of the organisation on the one hand, and the accounting instruments that it uses on the other hand. This link implies for planning and control instruments the use of the strategic plan as a framework, and for decision-making instruments the use of financial information that takes account of the strategic position of the organisation and possible changes in this position. The strategic-planning stage does not require that the accounting instruments used are consistent with the *specific* strategy that the organisation has chosen, such as a cost-leadership strategy or a differentiation strategy. Langfield-Smith (1997) contains a review of the literature on this latter relationship.

¹⁰ From the budgeting-system stage onwards, the table shows the expertise that is additionally required compared with the previous stage.

¹¹ It should be noted that Van Loon (1993, 1994, 1995) did not aim at explaining the level of sophistication of accounting instruments. Instead, his objective was to measure the development of three dimensions of the finance function (*i.e.* planning attitude, financial expertise and financial instruments), to investigate whether patterns can be observed in the development of these three dimensions, and to answer the question of how managers should gear the development of each of these dimensions to one another. In two respects, this paper is more focused.

First, we concentrate on management accounting, whereas Van Loon also considered financial accounting and finance. Second, our major concern is accounting instruments, whereas Van Loon attached as much importance to financial instruments as to planning attitude and financial expertise.

¹² Apart from these five configurations, Mintzberg (1989, chapters 12 and 13) distinguishes two other configurations: the missionary organisation, and the political organisation. He argues that sometimes an organisation's ideology or politics may become so strong that its whole structure is built around it. Then, respectively, a missionary or political organisation appears. In Mintzberg's view, however, organisational ideologies and politics are more commonly overlaid on conventional configurations. For this reason, this paper does not consider the missionary and political organisations.

¹³ Mintzberg (1993: 257-261) distinguishes the operational and the administrative adhocracy. In the operational adhocracy, all important parts of the organisation, including the 'operators', are part of the adhocracy. By contrast, in the administrative adhocracy, the operational work is separated from the rest of the organisation, and is not part of the adhocracy. This implies that 'operators' do not play a role in the project teams. This paper concentrates on the operational adhocracy, because it focuses on different ways to coordinate operating work.

¹⁴ Mintzberg (1993: 136) stresses that when he uses the term 'dynamic' he means unpredictable, not variable; variability may be predictable. Unpredictability may result from, for example, an unstable government, unpredictable shifts in the economy, unexpected changes in customer demand or competitor supply, client demands for creativity or frequent novelty, or rapidly changing technologies.

¹⁵ It should be noted that the operating company had characteristics of the *professional bureaucracy* as well. Because the decision discussed in this illustration does not require professional judgement, this is not taken into consideration.

¹⁶ The cable and telecommunication operating company is part of a divisionalised form. The discussion below makes clear that this mainly affects its planning and control instruments; the instruments that are not related to planning and control, including the instruments concerned with the decision discussed in this illustration, are influenced primarily by the configuration of the operating company itself.

¹⁷ According to Mintzberg, theoretically the divisionalised form can be superimposed on any of the other configurations. However, it works best with divisions that are structured as the machine bureaucracy. What is more, the divisionalised form drives divisions with other configurations toward the machine bureaucracy (Mintzberg, 1993: 219).

¹⁸ As far as it concerns planning and control. With respect to decision making, the theoretical framework suggests that the developmental stage depends on the configuration of the organisational part that takes the decisions.

¹⁹ As far as it concerns decision making and control. With respect to planning, the theoretical framework suggests that the professional bureaucracy fits into all developmental stages except the strategic-planning stage.